

25 -08- 2003

Claims page 15 revised 15 August 2003

PATENT CLAIMS

1. Apparatus for measuring blood pressure, comprising a generally tubular
5 constrictable sleeve or cuff for a limb of a person, a source for fluid pressure, means
for measuring static pressure, and microphone means arranged in proximity to an
artery, characterised in that the cuff is at least partly enclosed in two
essentially concave shell parts displaying a stiffness along the limb, said shell part
being openable against a restoring force, and in that a linear array of microphone
10 elements is disposed on a universal joint type support in one shell part essentially
perpendicular to the longitudinal axis of such shell part and near the lower end.
2. Apparatus according to claim 1, characterised in that signal selection
means of the diversity reception type are used to select the microphone that provides
15 the best signal-to-noise ratio.
3. Apparatus according to claim 1 or 2, characterised in that the
microphone signal is amplified and made available to an electroacoustic converter
for enabling listening to the signal.
20
4. Apparatus according to claim 3, characterised in that the signal is
output via a built-in speaker in the apparatus.
5. Apparatus according to claim 3, characterised in that the signal is
25 output via a wireless link to a receiver connected to earpieces carried by an
auscultating physician.
6. Apparatus according to claim 1, characterised in that it comprises
signal processing means for combining information derived from measurements of
30 slowly varying static pressures with information from said microphone means in
order to obtain a numerical value for a blood pressure.
7. Apparatus according to claim 1, characterised in that an inelastic
strap attached to one shell part is provided to close the gap between the shell parts.

8. Apparatus according to claim 7, characterised in that the strap is provided with means locking to the other shell part in conjunction with the overlapping of said strap and said other shell part.
- 5
9. Apparatus according to claim 8, characterised in that the amount of overlap between the strap and the shell part is used as a circumference measure for correcting the reading of blood pressure.
- 10
10. An apparatus according to claim 9, characterised in that the overlap is measured capacitively between an electrode or a plurality of electrodes fixed to the cuff and an electrode or a plurality of electrodes fixed to the strap.
11. Apparatus according to claim 1, characterised in that the shells are
- 15 fitted on hinge parts connected to handle parts operable by one hand.
12. Apparatus according to claim 1, characterised in that in addition to a stiffness in the longitudinal direction the shell structure displays a resilience in the circumferential direction.
- 20
13. Apparatus according to claim 12, characterised in that the hinge is a continuous resilient part joining the shell parts.
14. Apparatus according to claim 12, characterised in that the shell parts
- 25 are integral with the hinge part, forming one continuous sheet of material.
15. Apparatus according to claim 14, characterised in that the continuous sheet of material assumes a generally frusto-conical shape in its closed state.
- 30
16. Apparatus according to claim 11, characterised in that mechanical actuating means fitted in proximity to the hinge part compress one shell part towards the other during measurement.

17. Apparatus according to claim 16, characterised in that the mechanical actuating means consist of an air cylinder and levers.
18. Apparatus according to claim 16, characterised in that the mechanical actuating means consist of strings fitted near the inner side of each shell part and disposed perpendicular to the longitudinal axis of such shell part.
19. Apparatus according to claim 1, characterised in that an inflatable cuff forms an inner lining to the shell parts, providing an inflatable main air chamber.
20. Apparatus according to claim 19 in view of claim 7, characterised in that the strap is provided with air chambers disposed essentially perpendicular to the orientation of the shells and communicating with the main air chamber.
21. Apparatus according to claim 1, characterised in that the universal joint is emulated by a foam pad.
22. Apparatus according to claim 1, characterised in that the universal joint is emulated by means of a separate air chamber fitted between the cuff and the microphone array.
23. Apparatus according to any of the above claims, characterised in that the limb is an arm.
24. Apparatus according to any of the above claims, characterised in that the limb is a leg.